

The invention claimed is:

1. A hydraulic control mechanism which is selectively configurable for use, independently, with a constant volume hydraulic power system and a constant pressure hydraulic power system, said hydraulic control mechanism comprising:
  - a housing having a cavity defined by walls therein;
  - a piston retained in said cavity of said housing, said piston being capable of reciprocal movement within said cavity, said piston having a first side and a second side;
  - a retract chamber defined within said cavity between one of said walls of said cavity and said first side of said piston;
  - a drive chamber defined within said cavity between one of said walls of said cavity and said second side of said piston;
  - a controllable valve assembly coupled to said housing having an inlet passageway, an outlet passageway, a central passageway, and a cross passageway, said cross passageway being in fluid communication with said drive chamber, said central passageway being in fluid communication with said retract chamber; and
  - an adjustment assembly coupled to said housing having a valve chamber and a valve member positioned within said valve chamber, said valve chamber being in fluid communication with said central passageway and said cross passageway, said valve chamber defining a valve seat proximate to one of said central and cross passageways, said valve member being displaceable within said valve chamber.

2. A hydraulic control mechanism as defined in claim 1, wherein when said hydraulic control mechanism is selectively configured for use with the constant volume hydraulic power system, said valve member is configured such that said valve member is seated within said valve seat to prevent communication between said central passageway and said cross passageway when a pressure within said hydraulic control mechanism is less than a predetermined pressure within said hydraulic control mechanism, said valve member further being configured such that said valve member is unseated from within said valve seat to allow communication between said central passageway and said cross passageway when said pressure within said hydraulic control mechanism is greater than or equal to said predetermined pressure within said hydraulic control mechanism.

3. A hydraulic control mechanism as defined in claim 2, wherein said valve chamber defines a valve seat proximate to said central passageway such that when said pressure within said central passageway of said hydraulic control mechanism is greater than or equal to said predetermined pressure within said hydraulic control mechanism, said valve member is unseated from said valve seat to place said central passageway into fluid communication with said cross passageway.

4. A hydraulic control mechanism as defined in claim 3, wherein said hydraulic control mechanism is provided for in a hydraulic crimping tool.

5. A hydraulic control mechanism as defined in claim 2, wherein said valve chamber defines a valve seat proximate to said cross passageway such that when said pressure within said cross passageway of said hydraulic control mechanism is greater than or equal to said predetermined pressure within said hydraulic control mechanism, said valve member is 5 unseated from said valve seat to place said cross passageway into fluid communication with said central passageway.

6. A hydraulic control mechanism as defined in claim 5, wherein said hydraulic control mechanism is provided for in a hydraulic utility pruner tool.

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7. A hydraulic control mechanism as defined in claim 1, wherein when said hydraulic control mechanism is selectively configured for use with the constant pressure hydraulic power system, said valve member is configured such that said valve member is seated within said valve seat to prevent fluid communication between said central passageway and said 15 cross passageway regardless of a pressure within said hydraulic control mechanism.

8. A hydraulic control mechanism as defined in claim 7, wherein said valve chamber defines said valve seat proximate to said central passageway.

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9. A hydraulic control mechanism as defined in claim 10, wherein said hydraulic control mechanism is provided for in a hydraulic crimping tool.

10. A hydraulic control mechanism as defined in claim 7, wherein said valve chamber defines said valve seat proximate to said cross passageway.

11. A hydraulic control mechanism as defined in claim 10, wherein said hydraulic control mechanism is provided for in a hydraulic utility pruner tool.

12. A hydraulic control mechanism as defined in claim 1, wherein said valve member 5 includes a valve head, a normally expanded spring, an enlarged section and a knob, said normally expanded spring being connected to and positioned between said valve head and said enlarged section, said enlarged section being connected to and positioned between said normally expanded spring and said knob, said valve head capable of being seated within said valve seat, said knob capable of being moved to selectively configure said hydraulic control 10 mechanism for use with the constant volume hydraulic power system or with the constant pressure hydraulic power system.

13. A hydraulic control mechanism as defined in claim 12, wherein when said knob is configured in a first position, said normally expanded spring is expanded such that said valve 15 head is capable of being unseated from said valve seat to allow fluid communication between said central passageway and said cross passageway upon a pressure within said hydraulic control mechanism being greater than or equal to a predetermined pressure within said hydraulic control mechanism, such that said hydraulic control mechanism can be used with the constant volume hydraulic power system.

14. A hydraulic control mechanism as defined in claim 12, wherein when said knob is configured in a second position, said normally expanded spring is contracted such that said valve head is not capable of being unseated from said valve seat such that no fluid communication is allowed between said central passageway and said cross passageway, such 5 that said hydraulic control mechanism can be used with the constant pressure hydraulic power system.

15. A hydraulic control mechanism as defined in claim 1, wherein said adjustment assembly further includes a retaining ring provided within said valve chamber for maintaining 10 said valve member positioned within said valve chamber.

16. A hydraulic control mechanism as defined in claim 1, further including a spindle valve positioned within a spindle valve chamber of said housing, said spindle valve being displaceable within said spindle valve chamber such that said positioning of said spindle 15 valve within said spindle valve chamber places said inlet passageway into fluid communication with one of said central passageway and said cross passageway, and such that said positioning of said spindle valve within said spindle valve chamber places said outlet passageway into fluid communication with the other of said central passageway and said cross passageway.

17. An adjustment assembly for selectively configuring a hydraulic control mechanism of a hydraulic tool for use, independently, with a constant volume hydraulic power system and a constant pressure hydraulic power system, the hydraulic control mechanism having a controllable valve assembly having a central passageway and a cross passageway, the central 5 passageway communicating with a retract chamber of the hydraulic tool and the cross passageway communicating with a drive chamber of the hydraulic tool, said adjustment assembly comprising:

a valve chamber and a valve member positioned within said valve chamber, said valve chamber communicating with the central passageway and the cross passageway, said valve 10 chamber defining a valve seat proximate to one of the central and cross passageways, said valve member being displaceable within said valve chamber.

18. An adjustment assembly as defined in claim 17, wherein when the hydraulic control mechanism is selectively configured for use with the constant volume hydraulic power 15 system, said valve member is configured such that said valve member is seated within said valve seat to prevent fluid communication between the central passageway and the cross passageway when a pressure within the hydraulic control mechanism is less than a predetermined pressure within the hydraulic control mechanism, said valve member further being configured such that said valve member can be unseated from within said valve seat to 20 allow fluid communication between the central passageway and the central passageway when said pressure within the hydraulic control mechanism is greater than or equal to said predetermined pressure within the hydraulic control mechanism.

19. An adjustment assembly as defined in claim 18, wherein said valve chamber defines a valve seat proximate to the central passageway such that when said pressure within the central passageway of the hydraulic control mechanism is greater than or equal to said predetermined pressure within the hydraulic control mechanism, said valve member is unseated from said valve seat to place the central passageway into fluid communication with the cross passageway.

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20. An adjustment assembly as defined in claim 18, wherein said valve chamber defines a valve seat proximate to the cross passageway such that when said pressure within the cross passageway of the hydraulic control mechanism is greater than or equal to said predetermined pressure within the hydraulic control mechanism, said valve member is unseated from said valve seat to place the cross passageway into fluid communication with the central passageway.

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15 21. An adjustment assembly as defined in claim 17, wherein when the hydraulic control mechanism is selectively configured for use with the constant pressure hydraulic power system, said valve member is configured such that said valve member is seated within said valve seat to prevent fluid communication between the central passageway and the cross passageway regardless of a pressure within the hydraulic control mechanism.

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22. An adjustment assembly as defined in claim 17, wherein said valve chamber defines said valve seat proximate to the central passageway.

23. An adjustment assembly as defined in claim 17, wherein said valve chamber defines said valve seat proximate to the cross passageway.

24. An adjustment assembly as defined in claim 17, wherein said valve member includes  
5 a valve head, a normally expanded spring, an enlarged section and a knob, said normally expanded spring being connected to and positioned between said valve head and said enlarged section, said enlarged section being connected to and positioned between said normally expanded spring and said knob, said valve head capable of being seated within said valve seat, said knob capable of being moved to selectively configure said hydraulic control  
10 mechanism for use with the constant volume hydraulic power system or with the constant pressure hydraulic power system.

25. An adjustment assembly as defined in claim 24, wherein when said knob is configured in a first position, said normally expanded spring is expanded such that said valve head is  
15 capable of being unseated from said valve seat to allow communication between the central passageway and the cross passageway upon a pressure within the hydraulic control mechanism being greater than or equal to a predetermined pressure within the hydraulic control mechanism, such that the hydraulic control mechanism can be used with the constant volume hydraulic power system.

26. An adjustment assembly as defined in claim 24, wherein when said knob is configured in a second position, said normally expanded spring is contracted such that said valve head is not capable of being unseated from said valve seat such that no communication is allowed between the central passageway and the cross passageway, such that the hydraulic control mechanism can be used with the constant pressure hydraulic power system.

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27. An adjustment assembly as defined in claim 17, further including a retaining ring provided within said valve chamber for maintaining said valve member positioned within said valve chamber.

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28. A method of selectively configuring a hydraulic control mechanism for use, independently, with a constant volume hydraulic power system and a constant pressure hydraulic power system, said hydraulic control mechanism having a housing with a reciprocal piston retained therein which defines retract and drive chambers on either side thereof, and a 5 controllable valve assembly coupled to the housing having a central passageway and a cross passageway, the central passageway being in fluid communication with the retract chamber and the cross passageway being in fluid communication with the drive chamber; said method comprising the steps of:

- a) providing an adjustment assembly coupled to said housing having a valve chamber and a valve member positioned within said valve chamber, said valve chamber communicating with the central passageway and the cross passageway, said valve chamber defining a valve seat proximate to one of the central and cross passageways, said valve member being displaceable within said valve chamber; and
- b) positioning said valve member within said valve chamber such that said valve member is seated in said valve seat to prevent fluid communication between the central passageway and the cross passageway when a pressure within the hydraulic control mechanism is less than a predetermined pressure within the hydraulic control mechanism, and such that said valve member is unseated from said valve seat to allow fluid communication between the central passageway and the cross passageway when said pressure within the 15 hydraulic control mechanism is greater than or equal to said predetermined pressure within the hydraulic control mechanism.

29. A method as defined in claim 28, further comprising the step of:

c) positioning said valve member within said valve chamber such that said valve member is always seated in said valve seat to prevent fluid communication between the central passageway and the cross passageway regardless of a pressure within the hydraulic control mechanism.

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30. A method of selectively configuring a hydraulic control mechanism for use, independently, with a constant volume hydraulic power system and a constant pressure hydraulic power system, said hydraulic control mechanism having a housing with a reciprocal piston retained therein which defines retract and drive chambers on either side thereof, and a controllable valve assembly coupled to the housing having a central passageway and a cross passageway, the central passageway being in fluid communication with the retract chamber and the cross passageway being in fluid communication with the drive chamber; said method comprising the steps of:

15 a) providing an adjustment assembly coupled to said housing having a valve chamber and a valve member positioned within said valve chamber, said valve chamber communicating with the central passageway and the cross passageway, said valve chamber defining a valve seat proximate to one of the central and cross passageways, said valve member being displaceable within said valve chamber; and

20 b) positioning said valve member within said valve chamber such that said valve member is always seated in said valve seat to prevent fluid communication between the central passageway and the cross passageway regardless of a pressure within the hydraulic control mechanism.